SECTION 2

DISASSEMBLY PROCEDURE & MECHANICAL PART REPLACEMENT

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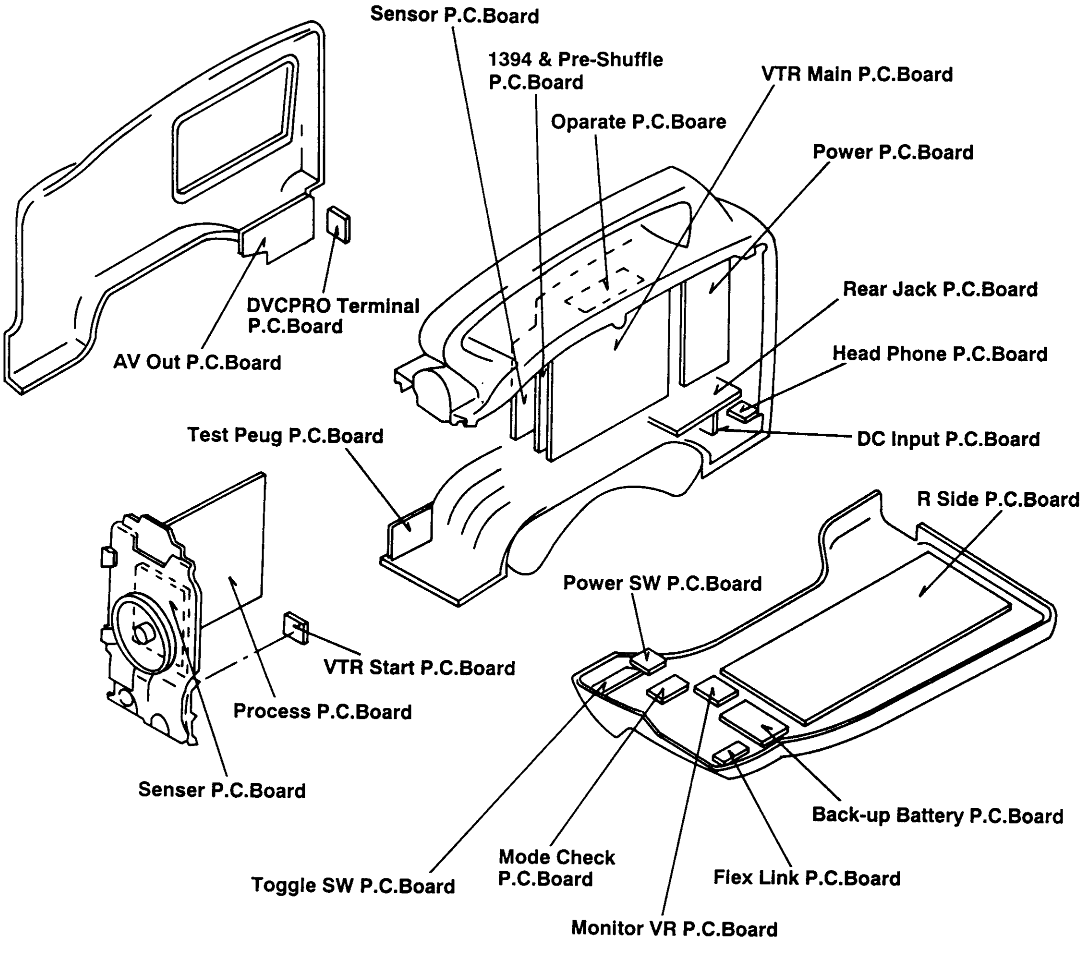
Circuit Board Layout



1. Service Menu

The following menu allows service personnel for service the AJ-D200/D215.

1-1. Software Version Menu

Set the MENU SET/OFF switch to SET white the **UP** and **DOWN** button depressed.
It will display Software version of System Control and servo.

1-2. Error Record Menu (Servo Option Menu)

Set the MENU SET/OFF switch to SET while the **UP** and **ITEM** button depressed.
The following menu appear in the View Finder.

```
        ---   SERVO OPTION MENU   ---
          CTL / ATF SELECT       : ATF

   97    06    05    10    20    30    0F   ◄──────
   00    00    00    00    00    00    00
   00    00    00    00    00    00    00
   00    00    00    00    00    00    00
   00    00    00    00    00    00    00

   ①     ②     ③     ④     ⑤     ⑥     ⑦
```

Example
1997 June 5th AM10:20:30
Loading Error

①Year ② Month ③ Day ④ Hour ⑤ Minute ⑥ Second ⑦ Error Code

Error Code	Error
04	Detected abnormal condition of the Brake or Pinch Solenoid.
08	Detected abnormal condition of the Cleaning Solenoid.
0F	Detected loading or unloading operation not completed less than 10 seconds.
0E	Detected Drum motor locked up for 3 seconds.
0D	Detected Capstan motor locked up for 1.5 seconds.
0C	Detected Take Up motor locked or abnormal speed condition up for 3 seconds.
0B	Detected Supply motor locked or abnormal speed condition up for 3 seconds.
FF	Detected communication error between System Control and Servo.
09	Detected serial clock communication error from Servo.
0A	Detected DEW condition.
11	Detected no Frame pulse.

1-3. TC/UB/CTL Set Menu

Set the MENU SET/OFF switch to SET while the **DOWN** and **PAGE** button depressed.
The following menu appear in the View Finder.

```
      ---  TC  DATA  SET  ---

     → HOUR          : 00
       MINUTE        : 00
       SEC           : 00
       FRAME         : 00

        ■ TC  DATA  SET
```

1. Select item by ITEM button.
2. Change data by UP or DOWN button.
   Hour : 0 ~ 23 Minute : 0 ~ 59
   Second : 0 ~ 59 Frame : 0 ~ 29
3. Select ■ TC DATA SET by ITEM button.
4. Press UP or DOWN button to set the data.
   (change flush to light)

↓ Press PAGE button.

```
      ---  UB  DATA  SET  ---

     → HOUR          : 00
       MINUTE        : 00
       SEC           : 00
       FRAME         : 00

        ■ UB  DATA  SET
```

1. Select item by ITEM button.
2. Change data by UP or DOWN button.
   Hour : 0 ~ FF Minute : 0 ~ FF
   Second : 0 ~ FF Frame : 0 ~ FF
3. Select ■ UB DATA SET by ITEM button.
4. Press UP or DOWN button to set the data.
   (change fluch to light)

↓ Press PAGE button.

```
     ---  CTL  DATA  SET  ---

     → HOUR          : 00
       MINUTE        : 00
       SEC           : 00
       FRAME         : 00

       ■ CTL  DATA  SET
```

1. Select item by ITEM button.
2. Change data by UP or DOWN button.
   Hour : 0 ~ 23 Minute : 0 ~ 59
   Second : 0 ~ 59 Frame : 0 ~ 29
3. Select ■ CTL DATA SET by ITEM button.
4. Press UP or DOWN button to set the data.
   (change flush to light)

↓ Press PAGE button to return TC DATA Set menu.

2. PC-EVR Adjustment Program

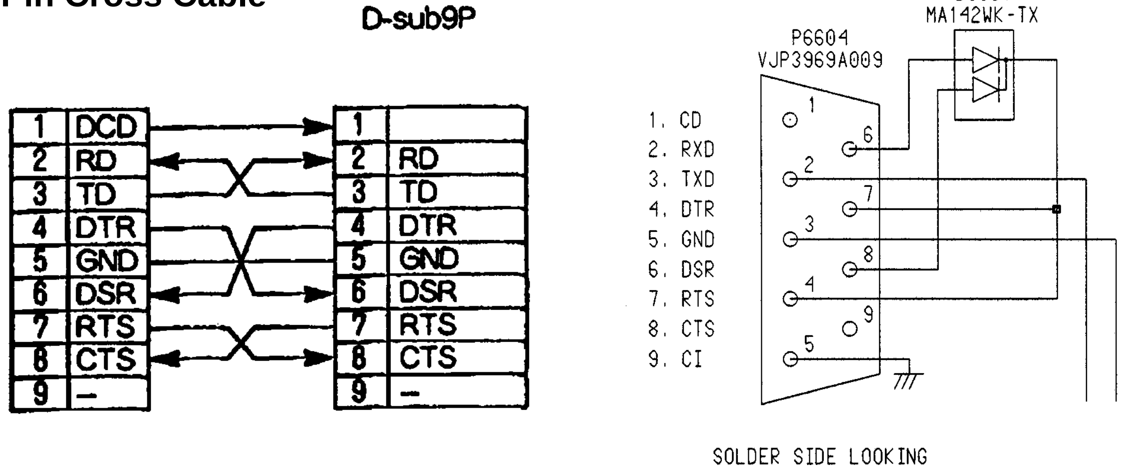
2-1. Adjustment Program Requirement

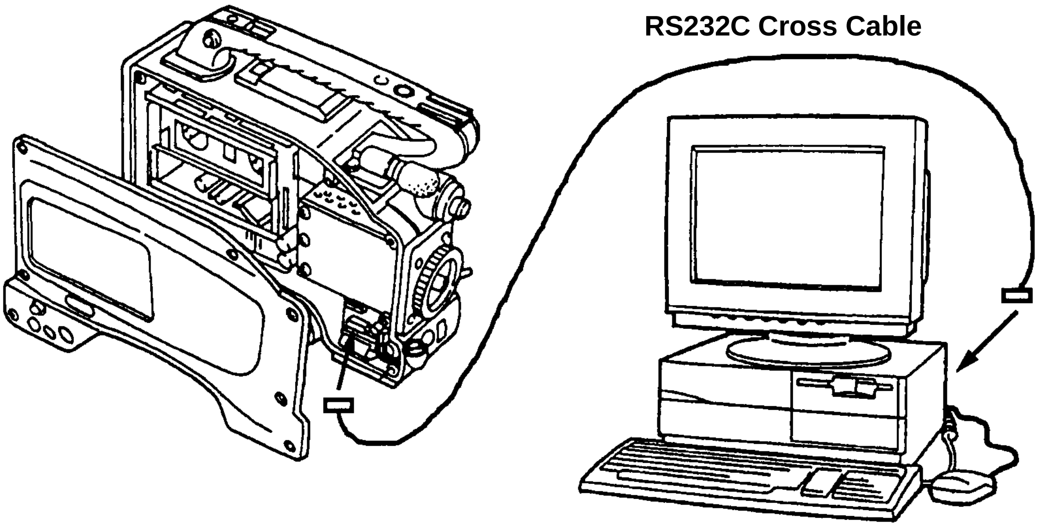
- PC-EVR Adjustment Software (VFK1340)
- Personal Computer (with WINDOWS Ver. 3.1 or WINDOWS 95)
- RS232C Cross Cable (9 Pin Female)

2-2. Set Up the Program & PC-EVR Connection

Install the Adjustment Program (VFK1340) floppy disk to the hard disk in personal computer.
Place FD in the Floppy Disk drive and copy [VSD] holder to the Hard Disk drive (C drive).
Connect the serial port of PC and P6604 of the TEST Connection C.B.A. at right side of the unit with 9 pin cross cable. (Please remove the Cassette Cover and Right Panel before perform adjustment.)

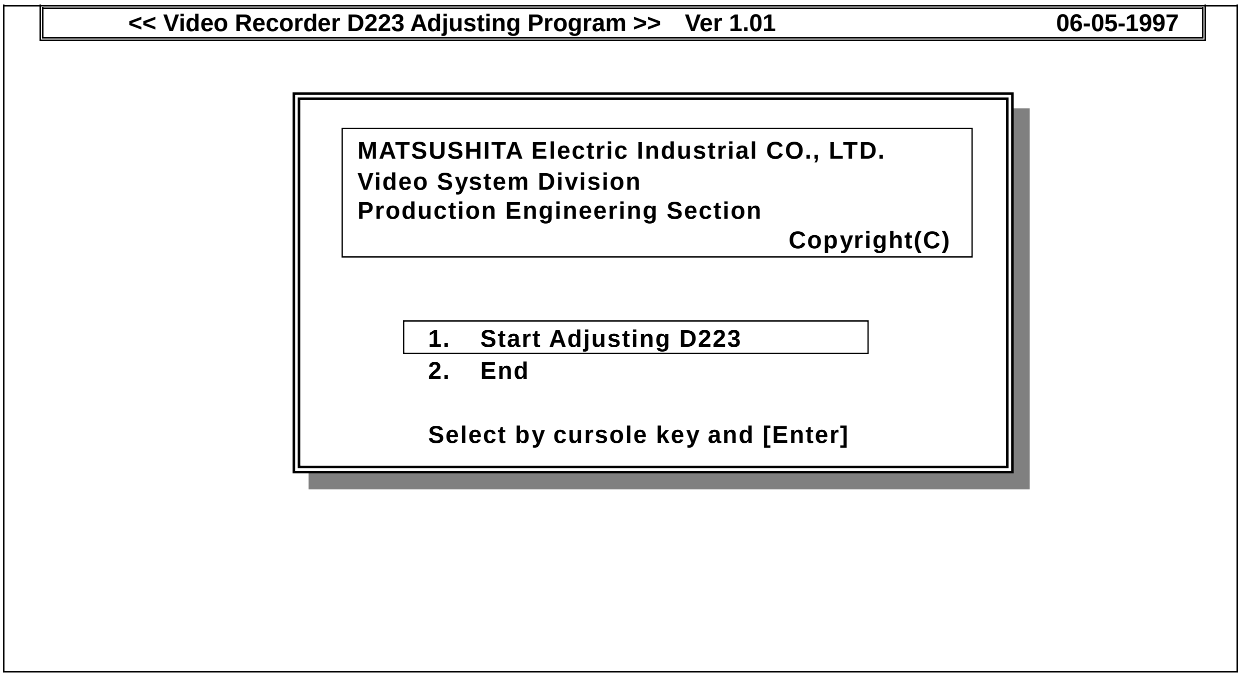
9 Pin Cross Cable





2-3. Start Up the Program

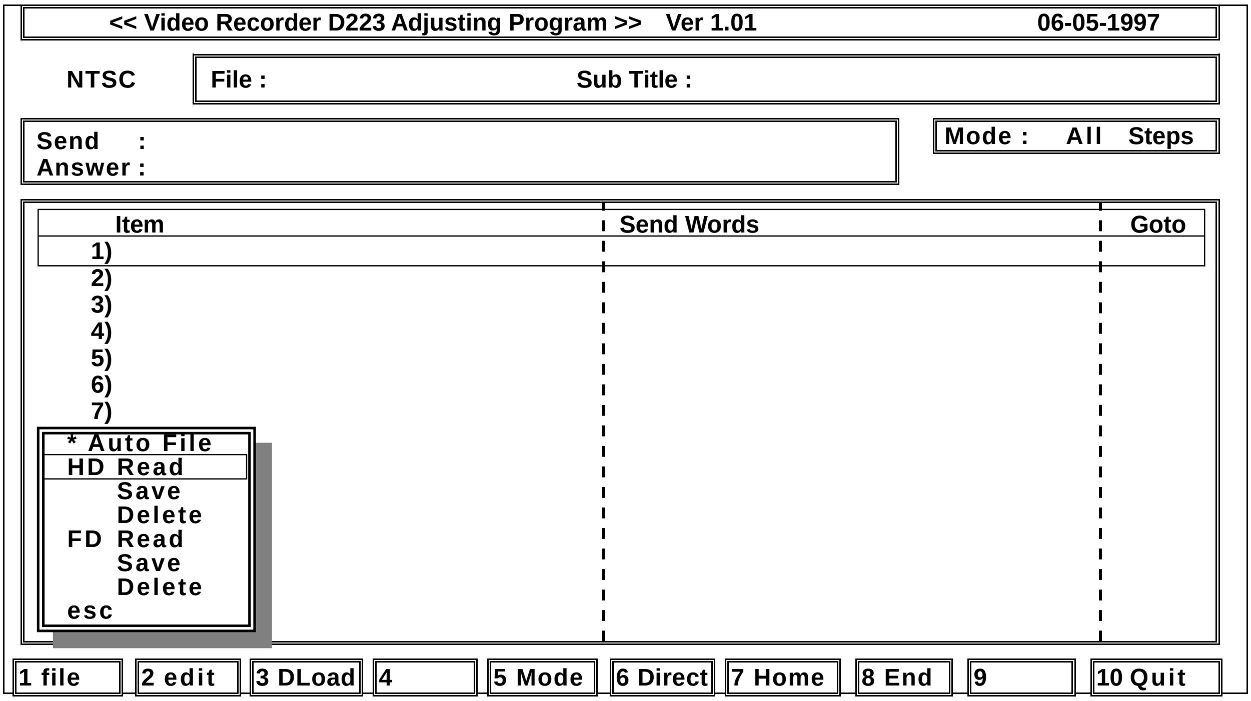
Type **CD VSD** and press Enter key at DOS prompt. Type **ADJVD** and press Enter key. Type **ADJVD038** then start this adjustment program and following title appears on the screen.



```
<< Video Recorder D223 Adjusting Program >>   Ver 1.01                06-05-1997

         MATSUSHITA Electric Industrial CO., LTD.
         Video System Division
         Production Engineering Section
                                        Copyright(C)

            1.   Start Adjusting D223
            2.   End

            Select by cursole key and [Enter]
```

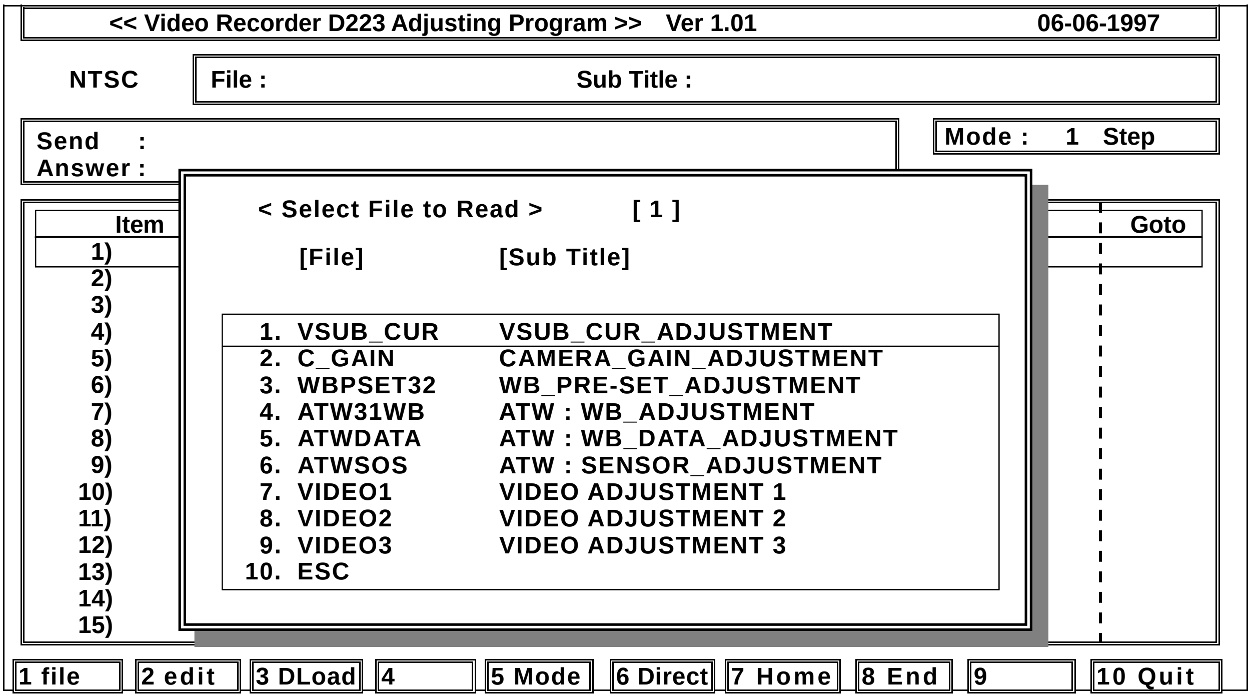
Select the **1. Start Adjusting D223** and press Enter key. Next appears **NTSC/PAL** (select **PAL**) and press Enter key.

The * **Auto File** window appear at left bottom on screen and select **HD Read** by ↑ ↓ key and press Enter key.



```
<< Video Recorder D223 Adjusting Program >>   Ver 1.01                06-05-1997

  NTSC      File :                          Sub Title :

Send    :                                                  Mode :    All   Steps
Answer :

      Item                               Send Words                      Goto
    1)
    2)
    3)
    4)
    5)
    6)
    7)
 * Auto File
 HD Read
    Save
    Delete
 FD Read
    Save
    Delete
 esc

1 file  2 edit  3 DLoad  4  5 Mode  6 Direct  7 Home  8 End  9  10 Quit
```

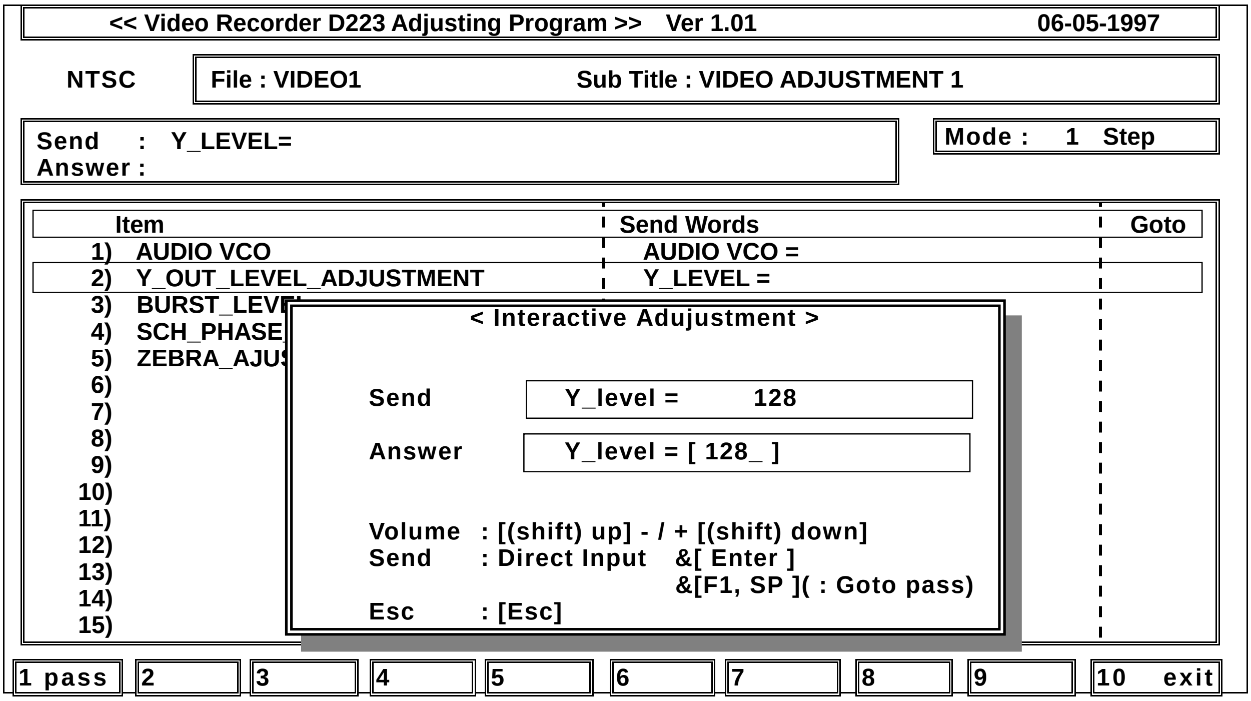
The **<Select File to Read>** window appear and select **Sub_Title** refer to each adjustment procedure by ↑ ↓ key and press Enter key.



```
<< Video Recorder D223 Adjusting Program >>   Ver 1.01                    06-06-1997

NTSC      File :                              Sub Title :

Send    :                                                        Mode :   1  Step
Answer :

Item        < Select File to Read >          [ 1 ]                            Goto
  1)
  2)            [File]              [Sub Title]
  3)
  4)        1.  VSUB_CUR          VSUB_CUR_ADJUSTMENT
  5)        2.  C_GAIN            CAMERA_GAIN_ADJUSTMENT
  6)        3.  WBPSET32          WB_PRE-SET_ADJUSTMENT
  7)        4.  ATW31WB           ATW : WB_ADJUSTMENT
  8)        5.  ATWDATA           ATW : WB_DATA_ADJUSTMENT
  9)        6.  ATWSOS            ATW : SENSOR_ADJUSTMENT
 10)        7.  VIDEO1            VIDEO ADJUSTMENT 1
 11)        8.  VIDEO2            VIDEO ADJUSTMENT 2
 12)        9.  VIDEO3            VIDEO ADJUSTMENT 3
 13)       10.  ESC
 14)
 15)

1 file | 2 edit | 3 DLoad | 4 | 5 Mode | 6 Direct | 7 Home | 8 End | 9 | 10 Quit
```

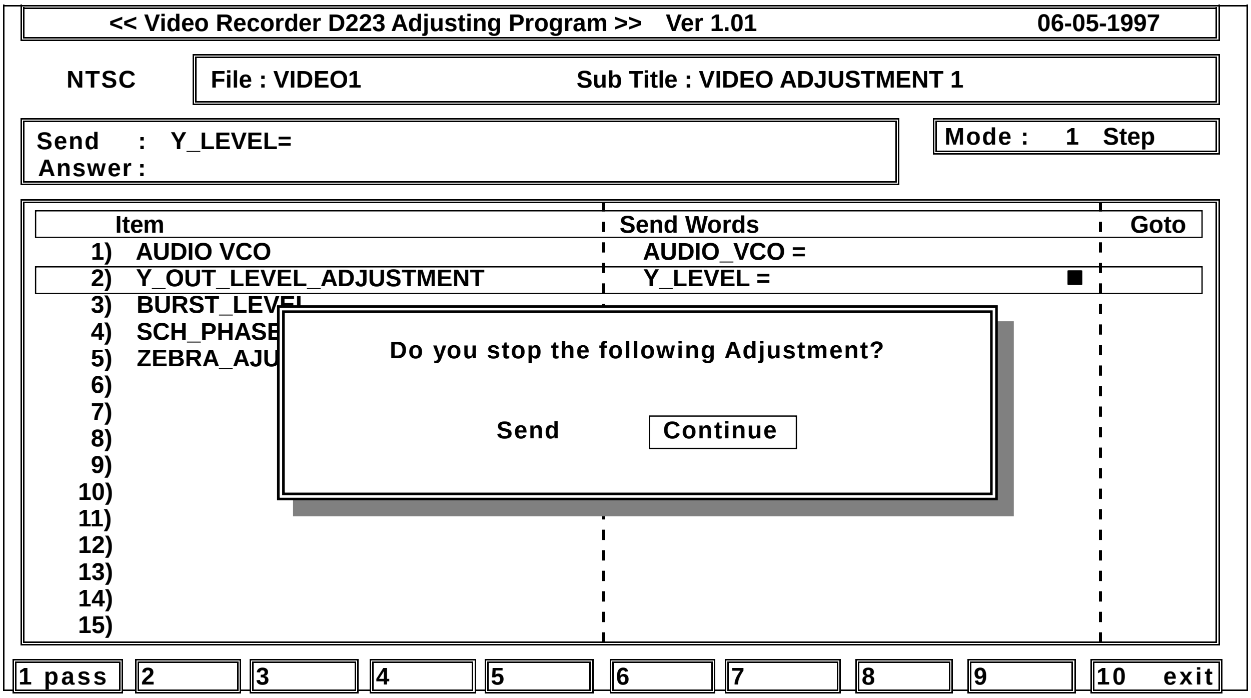
Move to other **Sub_Title**, press **F1 (File)** key after completed adjustment it will appear ***Auto File** window and select HD Read. Therefore **<Select File to Read>** window appear again.

The **<Interactive Adjustment>** window will appear when selected adjustment item as following. Press ↑ ↓ key to change value of data, then press Enter and ESC key write data in EEPROM.



```
<< Video Recorder D223 Adjusting Program >>   Ver 1.01                    06-05-1997

NTSC      File : VIDEO1                       Sub Title : VIDEO ADJUSTMENT 1

Send    :   Y_LEVEL=                                             Mode :   1  Step
Answer :

     Item                                   Send Words                        Goto
  1)  AUDIO VCO                               AUDIO VCO =
  2)  Y_OUT_LEVEL_ADJUSTMENT                  Y_LEVEL =
  3)  BURST_LEVE
  4)  SCH_PHASE           < Interactive Adujustment >
  5)  ZEBRA_AJU
  6)
  7)         Send          Y_level =        128
  8)
  9)         Answer        Y_level = [ 128_ ]
 10)
 11)
 12)         Volume  : [(shift) up] - / + [(shift) down]
 13)         Send    : Direct Input   &[ Enter ]
 14)                                  &[F1, SP ]( : Goto pass)
 15)         Esc     : [Esc]

1 pass | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10  exit
```

After pressed ESC key the following window appear on screen. **Do you stop the following Adjustment?** if want to go next item : select **Continue** and press Enter key. If want to Exit : select **Stop** and press Enter key.



<< Video Recorder D223 Adjusting Program >> Ver 1.01 06-05-1997

NTSC

File : VIDEO1 Sub Title : VIDEO ADJUSTMENT 1

Send : Y_LEVEL=
Answer :

Mode : 1 Step

Item	Send Words	Goto
1) AUDIO VCO	AUDIO_VCO =	
2) Y_OUT_LEVEL_ADJUSTMENT	Y_LEVEL = ■	
3) BURST_LEVEL		
4) SCH_PHASE		
5) ZEBRA_AJU		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		

Do you stop the following Adjustment?

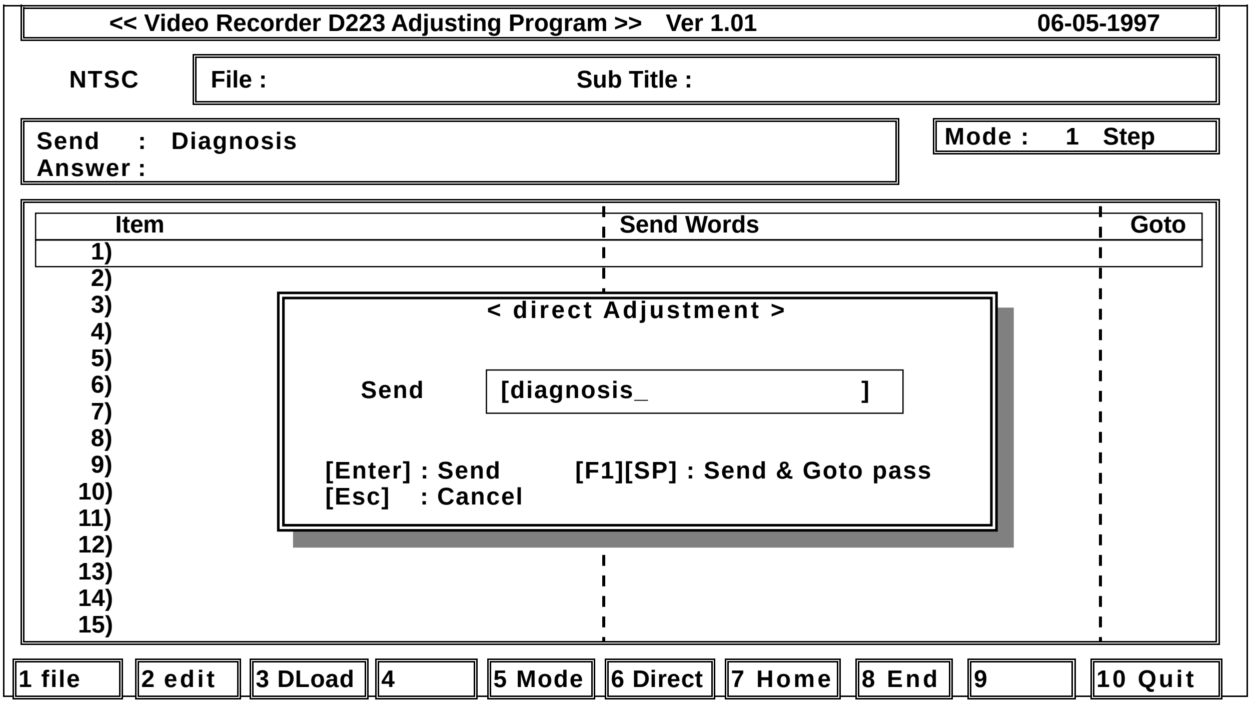
Send Continue

Direct Command List

Command	Contents
DIAGNOSIS	Inquire of the Return Operation Hours, and Syscon & Servo soft versions.
ADJMODE	Inquire of the Servo mode setting (Servo mode, Conceal, ECC and Dolby)
SETUPMENU	Inquire of the Menu set up.
INITIALIZE=OPERATION	Clear of the Operation hours.
INITIALIZE=DRUM_RUNNING	Clear of the Drum rotation hours.
INITIALIZE=THREADING	Clear of the Loading times.
INITIALIZE=MENU	Initialize the Menu to the Factory default setting.
SYNC	Force the adjustment data write into the Flush-memory.
CONCEAL=ON	Conceal ON
CONCEAL=OFF	Conceal OFF
INNERECC=ON	Inner ECC ON
INNERECC=OFF	Inner ECC OFF
OUTERECC=ON	Outer ECC ON
OUTERECC=OFF	Outer ECC OFF
DOLBY=ON	Dolby ON
DOLBY=OFF	Dolby OFF

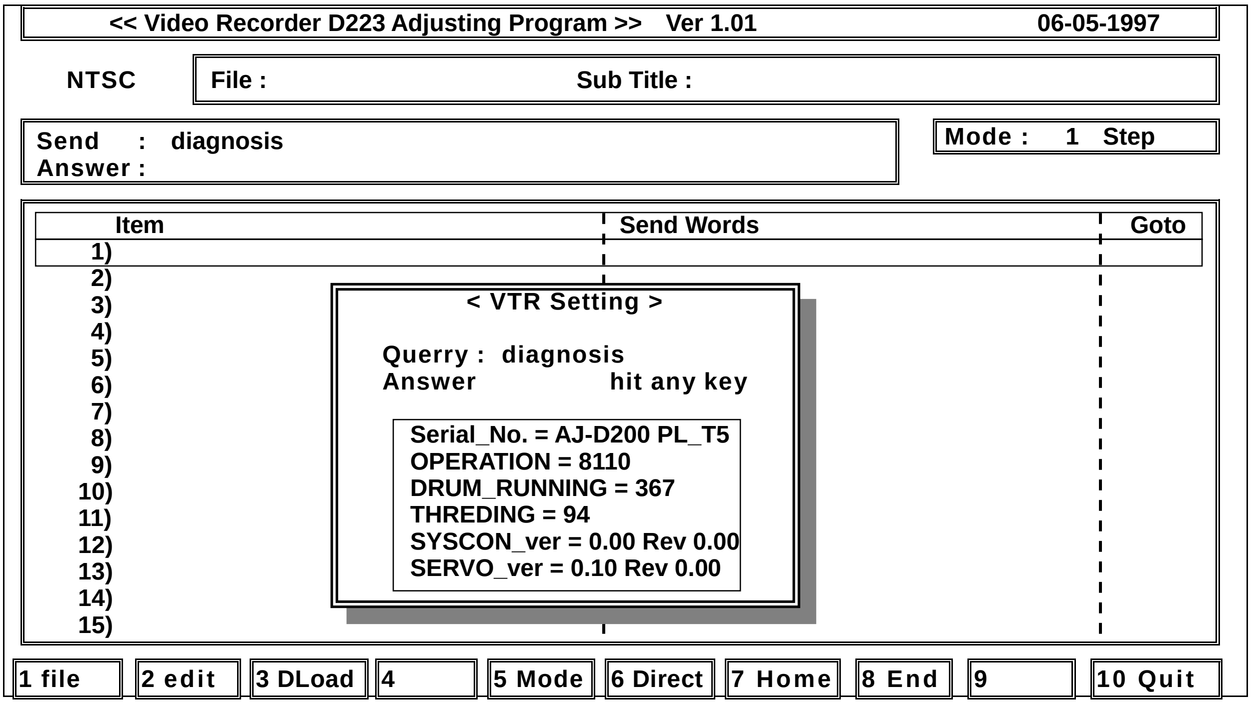
2-4 Direct Command operation

Press **F6 (Direct), <Direct adjustment>** window appear on screen as shown in below.
Example: Type **diagnosis** and press Enter key. Therefore appear return data from unit.



```
<< Video Recorder D223 Adjusting Program >>   Ver 1.01                06-05-1997
NTSC      File :                         Sub Title :
Send    :   Diagnosis                                        Mode :    1   Step
Answer :
Item                                 Send Words                          Goto
1)
2)
3)
4)                       < direct Adjustment >
5)
6)
7)             Send        [diagnosis_                    ]
8)
9)
10)        [Enter] : Send        [F1][SP] : Send & Goto pass
11)        [Esc]   : Cancel
12)
13)
14)
15)
```

Example : **<VTR Setting>** shows Serial No., Operation hours, Drum rotation hours, Loading threding time and System Control & Servo processor version.



```
<< Video Recorder D223 Adjusting Program >>   Ver 1.01                06-05-1997
NTSC      File :                         Sub Title :
Send    :   diagnosis                                        Mode :    1   Step
Answer :
Item                                 Send Words                          Goto
1)
2)
3)                    < VTR Setting >
4)
5)          Querry :  diagnosis
6)          Answer              hit any key
7)
8)            Serial_No. = AJ-D200 PL_T5
9)            OPERATION = 8110
10)           DRUM_RUNNING = 367
11)           THREDING = 94
12)           SYSCON_ver = 0.00 Rev 0.00
13)           SERVO_ver = 0.10 Rev 0.00
14)
15)
```

3. 232C Communication Software

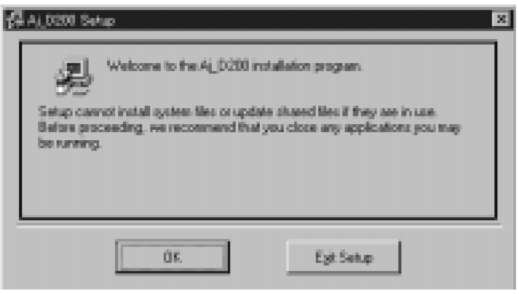
Part No. VFK1425

This software used read or write the Adjustment and Menu setting data between the personal computer and the AJ-D200 or AJ-D215.

3-1. INSTALLATION

This software has three floppy disks.
(Windows95 is required)

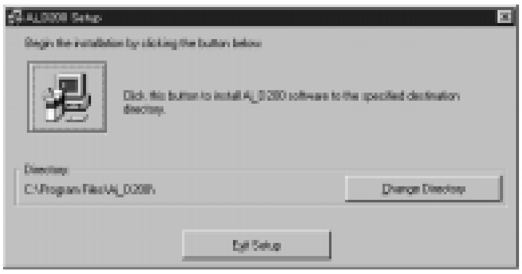
① Inset the SETUP Disk1 to the Drive A: (Floppy Disk Drive).
② Select A: Drive on the Explore, and double click the [Setup] file then the file initialize window will be displayed.
③ Change the Setup Disk2 when [Please insert the disk labeled 'Disk 2'….] window displayed.
④ Click the OK button when [Welcome to the AJ-D200 installation program] window displayed.



Welcome to the Aj_D200 installation program.

Setup cannot install system files or update shared files if they are in use. Before proceeding, we recommend that you close any applications you may be running.

⑤ Click the Computer picture button in the installation start [Begin the installation by….] window, the setup system will proceed to load the files to Aj_D200 folder under the Program Files in the C: Drive.

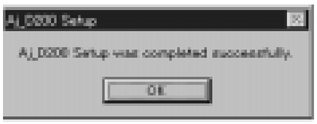


Begin the installation by clicking the button below.

Click this button to install Aj_D200 software to the specified destination directory.

C:\Program Files\Aj_D200\

⑥ Change the Setup Disk3 when [Please insert the disk labeled 'Disk 3'….] window displayed.
⑦ Click the OK button in the [Aj_D200 Setup was completed successfully] window.



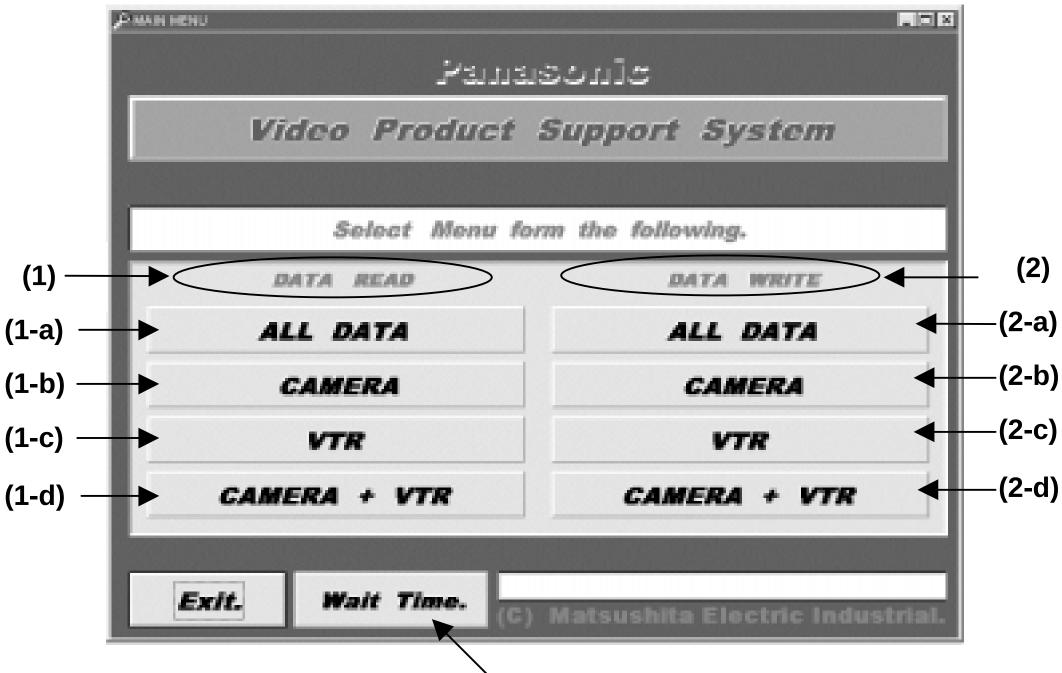
Aj_D200 Setup was completed successfully.

3-2. Operation

① Click the Start button on the Windows95 taskbar, and select Program→Aj-D200 then click it, the Communication software will be start-up.

② Select the Serial Port of the connected 9pin cable on the PC in the “Select Serial Port” window.

③ Main Menu is displayed as below.



Select Menu form the following.

(C) Matsushita Electric Industrial.

Refer to "⑦ Wait Time" section.

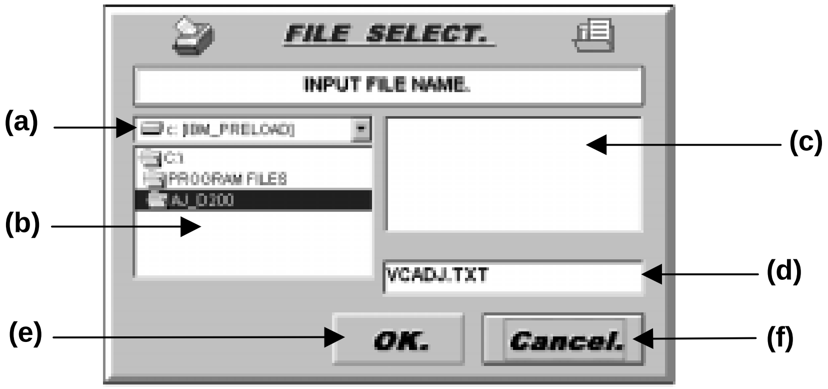
(1) DATA READ

(1-a): Store the All adjustment and Menu setting data from the AJ-D200 to the PC.
(1-b): Store the Camera adjustment data from the AJ-D200 to the PC.
(1-c): Store the VTR adjustment data from the AJ-D200 to the PC.
(1-d): Store the Camera and VTR adjustment data from the AJ-D200 to the PC.

(2) DATA WRITE

(2-a): Write the All adj. and Menu setting data from the PC file to the AJ-D200.
(2-b): Write the Camera adjustment data from the PC file to the AJ-D200.
(2-c): Write the VTR adjustment data from the PC file to the AJ-D200.
(2-b): Write the Camera and VTR adjustment data from the PC file to the AJ-D200.

④ **FILE SELECT window:** After selected the item of DATA READ or DATA WRITE.



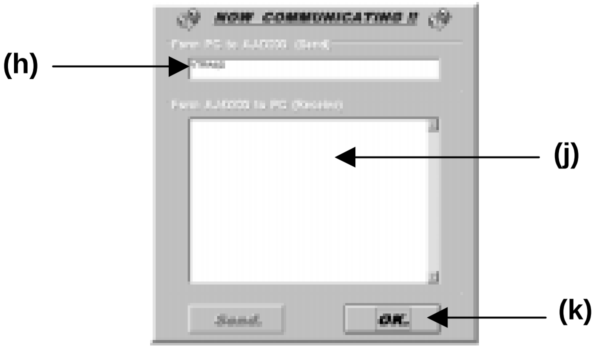
- **(a):** Drive List Box ⇒ Selection of the Drive to save or read file.
- **(b):** Directory List Box ⇒ Selection of the Directory to save or read file.
- **(c):** File List Box ⇒ Selection of the file.

  ❖ Default file name (ordinary set file name as below)

  ALL DATA: ALLDATA.TXT
  CAMERA: CAMADJ.TXT
  VTR: VTRADJ.TXT
  CAMERA+VTR: VCADJ.TXT
- **(d):** File Text Box ⇒ Input the file name.

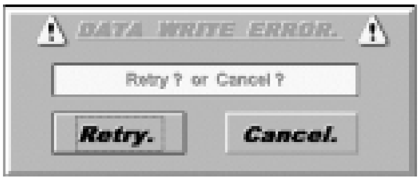
  ❖ Type "*.TXT" in this box, when read a file except for default set.
- **(e):** OK button ⇒ Fix the Read or Write file name and proceed the file checking.
- **(f):** Cancel button ⇒ Invalidate the selected file, then back to the Main Menu.

⑤ **COMMUNICATION PROCESS window:** After clicked the OK button as shown in above (f).



- **(h):** If selected items on the DATA WRITE side, displayed command and sends data to the AJ-D200.
- **(j):** If selected item on the DATA READ side, displayed receives data from the AJ-D200.
- **(k):** [STOP] is displayed during transmission, and click the this button will be interrupt the transmission process. After completed transmission, displayed change to [OK] and click it to back the Main Menu.

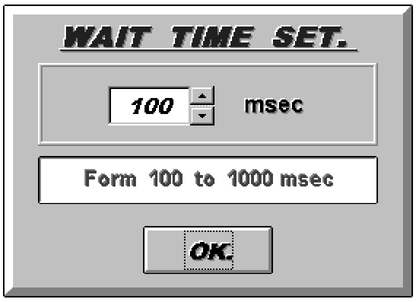
⑥ **COMMUNICATION ERROR window:** The Data Write Error window displayed when unmatched the send data in the PC and received data of the AJ-D200 during data file writing process.



Retry ? or Cancel ?

Retry.: Re-send the data.
Cancel.: Back to Main Menu.

⑦ **WAIT TIME SET window:** Be able to set a waiting time between data line and next data line.
Setting value is 100ms ~ 1000ms (default set 100ms).



100 msec

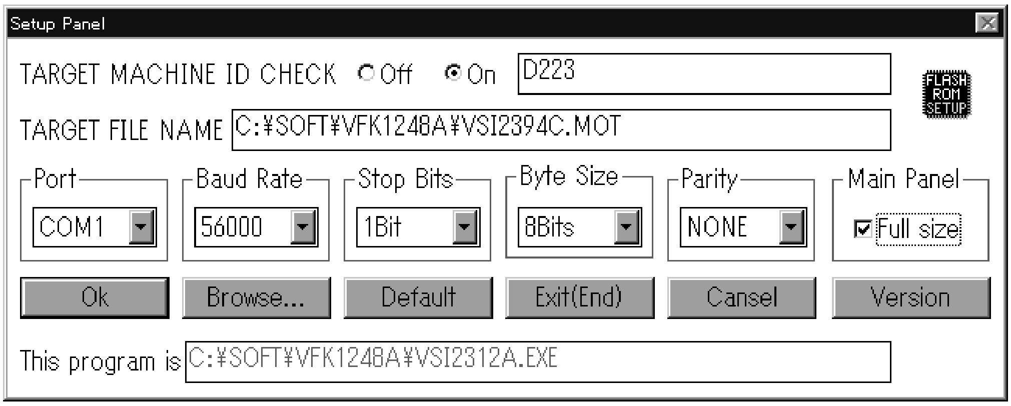
Form 100 to 1000 msec

❖ If data write error appear, try to increase the wait time.

3-3. Flash ROM Version-up

The all data should be store in a file when perform version-up for the Flash ROM. This ROMWRITER software will delete all data in the Flash ROM.

1. Click the Start button on the Windows95 taskbar, and select Program→Aj-D200 then click it, the Communication software will be start-up.
2. Select "ALL DATA" in the "DATA READ" side and save the adjustment and menu data to the PC.
3. Turn OFF the unit, open the left side panel and set the SW1 to WRITE side on the MAIN C.B.A..
4. Turn ON the unit, confirm the three LED are light on in the View Finder.
5. Start-up the Flash ROM writer software (VFK1248A).
    1) Open the VFK1248A folder with explore.
    2) Double click the VSI2312A application file.
6. Set communication set-up in the Setup Panel as shown in below, then click OK button.



Setup Panel

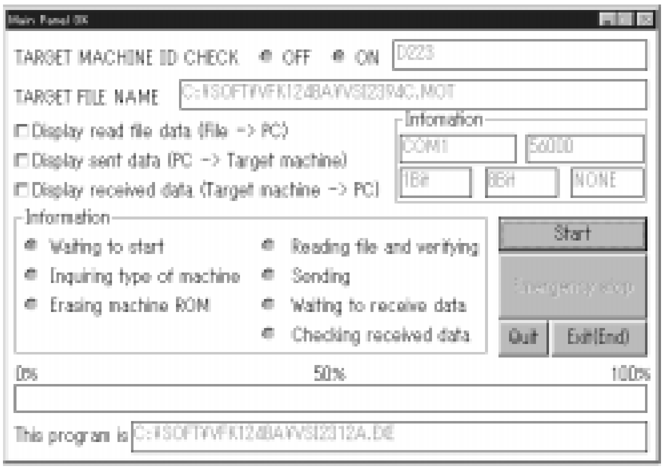
TARGET MACHINE ID CHECK ○ Off ● On D223

TARGET FILE NAME C:¥SOFT¥VFK1248A¥VSI2394C.MOT

Port: COM1
Baud Rate: 56000
Stop Bits: 1Bit
Byte Size: 8Bits
Parity: NONE
Main Panel: ☑ Full size

This program is C:¥SOFT¥VFK1248A¥VSI2312A.EXE

TARGET MACH. ID CHECK: On, Type "D223"
TARGET FILE NAME: Click Browse… button and select new software *.MOT.
Port: COM1 or COM2 Baud Rate: 56000
Stop Bit: 1Bit Byte Size: 8Bit
Parity: None Main Panel: Full size check



TARGET MACHINE ID CHECK ● OFF ● ON D223

TARGET FILE NAME C:¥SOFT¥VFK1248A¥VSI2394C.MOT

☐ Display read file data (File -> PC)
☐ Display sent data (PC -> Target machine)
☐ Display received data (Target machine -> PC)

Information: COM1 56000 1Bit 8Bit NONE

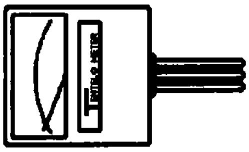
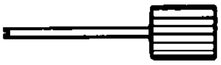
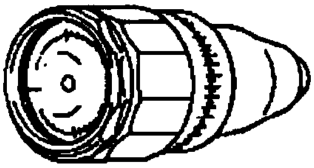
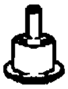
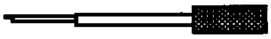
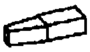
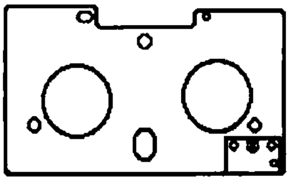
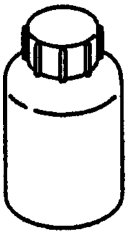
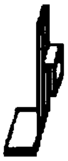
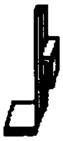
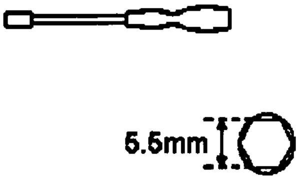
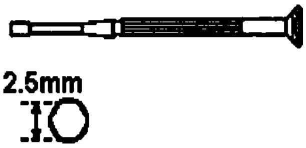
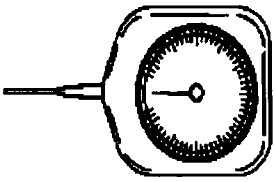
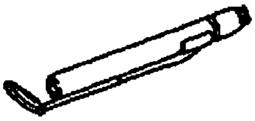
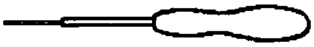
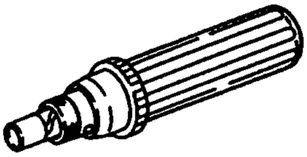
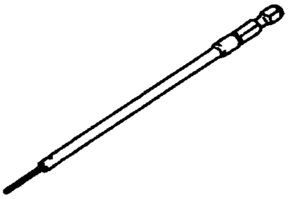
Information
● Waiting to start
● Inquiring type of machine
● Erasing machine ROM
● Reading file and verifying
● Sending
● Waiting to receive data
● Checking received data

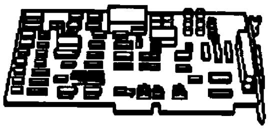
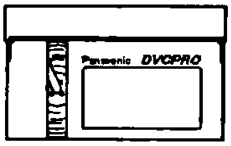
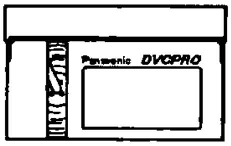
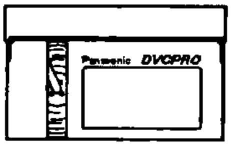
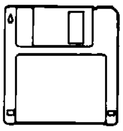
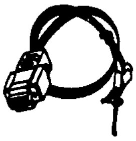
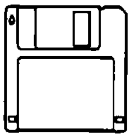
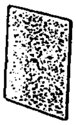
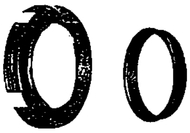
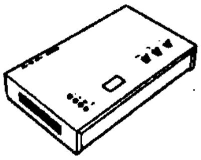
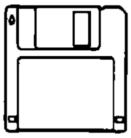
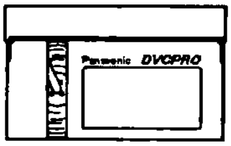
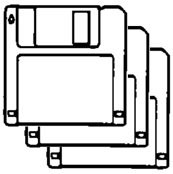
This program is C:¥SOFT¥VFK1248A¥VSI2312A.EXE

7. Click the Start button to load a software.
8. After completed loading, turn OFF the unit and set the SW1 to NORMAL side.
9. Turn ON the unit and start-up the communication soft again.
10. Select "ALL DATA" in the "DATA READ" side, and write the saved data to the AJ-D200.

4. Tool List

Fig	ITEM	PART No.	JIG & EQUIPMENT	AJ-D700	AJ-D230	Remark
1	Jig Tool	VFK1145	Back Tension Meter (T2-M30-P)	yes	yes	
2		VFK1149	Post Driver	yes	yes	
3		VFK71	Dial Torque Gauge(150g)	yes	yes	
4		VFK1191	Dial Torque Gauge(45g)	yes	yes	
5		VFK1152	Dial Torque Gauge Adaptor	yes	yes	
6		VFK0357	Eccentric Screwdriver(1.5)	yes	yes	
7		VFK1154	Post Height Fixture	yes	yes	
8		VFK1348	Mech. Neutral Plate (Post)	no	yes	
9		VFK0906	High Quality Oil	yes	yes	
10		VFK1155	Neutral Position Tool (Gold)	yes	yes	
11		VFK1156	Neutral Position Tool (Black)	yes	yes	
12		VFK1208	Neutral Position Tool (Black w/Hole)	yes	yes	
13		VFK1150	Nut Driver (5.5mm)	yes	yes	
14		VFK1151	Nut Driver(2.5mm)	yes	yes	
15		VFK1188	Dial Tension Gauge (30g)	yes	yes	
16		VFK0948	Check Light	yes	yes	
17		VFK0749	Froiral Grease (for plastic)	yes	yes	
18		MOR265	Morlytone Grease (for metal)	yes	yes	
19		VFK1146	Philips Driver (Fine)(00-75)	yes	yes	
20		VFK1147	Philips Driver (Fine)(0-100)	yes	yes	
21		VFK1148	Hex. Driver (1.5)	yes	yes	
22		VFK1178	Hex. Driver (0.89)	yes	yes	
23		VFK1179	Hex. Driver (0.71)	yes	yes	
24		VFK1190	HEX. Wrench	yes	yes	
25		VFK1209	Torque Driver (0.4-3Kg)	yes	yes	
26		VFK0912	Post Axis Driver (1.5mm)	yes	yes	
27		DAQ-12	A/D Board	yes	yes	Purchase locally
28		VFM3580KL	Alignment Tape (No.1)	no	yes	(NTSC only)
29		VFM3581KL	Alignment Tape (No.2)	no	yes	(NTSC only)
30		VFM3582KL	Alignment Tape (No.3)	no	yes	(NTSC only)
31		VFM3680KL	Alignment Tape (No.1)	no	yes	(PAL only)
32		VFM3681KL	Alignment Tape (No.2)	no	yes	(PAL only)
33		VFM3682KL	Alignment Tape (No.3)	no	yes	(PAL only)
34		AJ-CL12LP	Cleaning Tape	no	yes	SALES
35		VFK1159	LISTA Software	yes	yes	
36		VFK1186	LISTA CABLE	yes	yes	
37		VFK1340	PC-EVR Adjustment Software	no	Ok	(PAL only)
38		VFK1341	CC Filter (LB40)	no	Ok	
39		VFK1342	CC Filter (LB80)	no	Ok	(NTSC only)
40		VFK1343	CC Filter (LA40)	no	Ok	(PAL only)
41		VFK1347	CC Filter (LB120)	no	Ok	
42		VFK1345	CC Filter Holder	no	Ok	
43		VFK1346	CC Filter Holder Step Down Ring	no	Ok	
44		VFK1158	B.E.R. Counter Tool	yes	Ok	
45		VFK1185	B.E.R. Counter Cable	yes	Ok	
46		VFK1248A	Flush ROM Version-Up Software	no	yes	
47		- - -	9 Pin Reverse (Cross) Cable	no	yes	Purchase locally
48		VFK1423	Tape Sensor Cassette	no	yes	
49		VFK1425	RS232C Comm. Software	no	no	

1 VFK1145 Back Tension Meter  Model : T2-M30-P	2 VFK1149 Post Driver 	3 VFK71(150g) 4 VFK1191(45g) Dial Torque Gauge 	5 VFK1152 Dial Torque Gauge Adapter 
6 VFK0357(ø1.5) Eccentric Screwdriver 	7 VFK1154 Post Height Fixture 	8 VFK1348 Mech Neutral Plate(Post) 	9 VFK0906 High Quality Oil 
10 VFK1155(REV, Gold) 11 VFK1156(PLAY, Black) 12 VFK1208(Neutral, Black With hole)  (Gold)  (Black)	13 VFK1150 Nut Driver(5.5mm) 	14 VFK1151 Nut Driver(2.5mm) 	15 VFK1188(30g) Dial Tension Gauge 
16 VFK0948(or purchase locally) Check Light 	17 VFK0749 Froiral Grease(White) (for plastic part) 	18 MOR265 Morlytone Grease(Black) (for metal part) 	19 VFK1146(00 x 75) 20 VFK1147(0 x 100) Phillips Driver
21 VFK1148(1.5mm) 22 VFK1178(0.89mm) 23 VFK1179(0.71mm) Hex. Driver 	24 VFK1190(1.5mm) Hex. Wrench 	25 VFK1209 Torque Driver(0.4-3Kg) 	26 VFK0912 Post Axis Driver(1.5mm) 

27 DAQ-12 A/D Converter Board (For Quatech. Purchase Locally) 	28 VFM3580KL 29 VFM3581KL 30 VFM3582KL DVC PRO Alignment Tape (L cassette) 	31 VFM3680KL 32 VFM3681KL 33 VFM3682KL DVC PRO Alignment Tape (L cassette) 	34 AJ-CL12LP Cleaning Tape (L cassette) 
35 VFK1159 LISTA Software 36 VFK1186 LISTA Cable 	37 VFK1340 PC-EVR Adjustment Software 	38 VFK1341(LB40) 39 VFK1342(LB80) 40 VFK1343(LA40) 41 VFK1347(LB120) CC Filter 	42 VFK1345 CC Filter Holder 43 VFK1346 CC Filter Holder Step Down Ring 
44 VFK1158 B.E.R. Counter Tool 45 VFK1185 B.E.R. Counter Cable 	46 VFK1248A Flush ROM Version-Up Software 	48 VFK1423 Tape Sensor Cassette 	49 VFK1425 RS232C Comm. Software 

5. Alignment Tapes

DVCPRO Alignment Tape

VFM3580KL(NTSC)

Time (min)	Video		PCM		CUE	
	Signal	**Purpose**	**Signal**	**Purpose**	**Signal**	**Purpose**
0:00	Color Bar SMPTE(75%)	Composite Video Level Confirmation	1kHz -20dB	Audio Level Confirmation	1kHz 0VU	CUE Level Confirmation
7:00	Color Bar Full Field(75%)	Component Video Level Confirmation				
14:00	H Sweep	Frequency Response			6kHz 0VU	A/C Head Azimuth
18:00	Bowtie(500k)	Y/C Timing				
22:00	Pulse&Bar	Y/C Timing			-10dB, 1kHz 50Hz ~ 15kHz	Frequency Response
26:00 **30:00**	Area Markers					

VFM3581KL(NTSC)

Time(min)	Signal
0:00~20:00	ITI Pattern

VFM3582KL(NTSC)

Time(min)	Signal
0:00~10:00	X Value

VFM3680KL (PAL)

Time (min)	Video		PCM		CUE	
	Signal	**Purpose**	**Signal**	**Purpose**	**Signal**	**Purpose**
0:00	Color Bar 100%	Video Level Confirmation	1kHz -18dBu	Audio Level Confirmation	1kHz Reference level	CUE Level Confirmatio
10:00	H Sweep	Frequency Response				
14:00	Area Markers				6kHz Reference level	A/C Head Azimuth
18:00	Bowtie(500k)	Y/C Timing				
22:00	Pulse & Bar	Y/C Timing			1kHz 300Hz~6kHz	Frequency Response
26:00 **30:00**	Multi Pulse	Y/C Timing				

VFM3681KL (PAL)

Time (min)	Signal
0:00 ~ 20:00	ITI Pattern

VFM3682KL (PAL)

Time (min)	Signal
0:00 ~ 10:00	X Value

6. Recommended Test And Service Equipment

NTSC

Part No.	Name	Remark
TSG130A(OP.04)	Analog Component Signal Generator	TEKTRONIX
	Oscilloscope	
1750,1760(OP.SC) or 1780R	WFM Monitor	TEKTRONIX
	Digital Volt Meter	
	Frequency Counter	
	VTVM	Frequency Band Width 4Hz-500KHz
	Audio Analyzer	

PAL

Part No.	Name	Remark
TSG131A(OP.04)	Analog Component Signal Generator	TEKTRONIX
	Oscilloscope	
1751,1761(OP.SC) or 1781R	WFM Monitor	TEKTRONIX
	Digital Volt Meter	
	Frequency Counter	
	VTVM	Frequency Band Width 4Hz-500KHz
	Audio Analyzer	